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Death Anxiety in Patients with Hypertension and ST-Elevation Acute Myocardial Infarction and the Affecting Factors

Hipertansiyon ve ST Elevasyon'lu Akut Miyokard İnfarktüsü Hastalarında Ölüm Anksiyetesi ve Etkileyen Faktörler

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ABSTRACT

Objective: Death Anxiety in Patients with Hypertension and ST-Elevation Acute Myocardial Infarction and the Affecting Factors

Materials and Methods: This study was conducted between February and March 2022, with 195 patients with hypertension, ST-Elevation Acute Myocardial Infarction and healthy individuals. Patients who were admitted to the city hospital's cardiology outpatient clinic and were followed up in the outpatient clinic with the diagnosis of hypertension and ST-Elevation Acute Myocardial Infarction for the last one year were included in the study. The research data were collected using a Patient Information Form and the "Abdel Khalek Death Anxiety Scale".

Results: The mean death anxiety scale score was 46.38±16.72 in hypertension patients, 38.27±12.84 in patients with ST-Elevation Acute Myocardial Infarction, and 48.93±16.83 in healthy individuals. A significant difference was found between the death anxiety scores of patients with hypertension compared to patients with ST-Elevation Acute Myocardial Infarction (p=0.007). Death anxiety scores of the groups were found to be correlated with some sociodemographic characteristics (p<0.05).

Conclusions: It was determined that death anxiety was significantly higher in hypertension patients compared to ST-Elevation Acute Myocardial Infarction patients.

Keywords: Death anxiety, hypertension, myocardial infarction, ST-elevation

ÖZ

Amaç: Bu araştırma, Hipertansiyon ve ST Elevasyon'lu Akut Miyokard İnfarktüsü hastalarında ölüm anksiyetesi ve etkileyen faktörleri belirlemek amacıyla yapıldı.

Materyal ve Metot: Bu çalışma Şubat-Mart 2022 tarihleri arasında hipertansiyonu olan, ST elevasyonlu Akut Miyokard İnfarktüsü geçirmiş hasta ve sağlıklı bireylerden oluşan toplam 195 kişi ile gerçekleştirildi. Çalışmaya şehir hastanesi kardiyoloji polikliniğine başvuran, son 1 yıldır hipertansiyon ve ST Elevasyon'lu Akut Miyokard İnfarktüsü tanısı ile poliklinikte izlenen hastalar dahil edildi. Araştırmanın verileri; Hasta Bilgi Formu ve "Abdel Khalek Ölüm Kaygısı Ölçeği" kullanılarak toplandı.

Bulgular: Ölüm anksiyetesi ölçeği puan ortalaması Hipertansiyon hastalarında 46,38±16,72, ST Elevasyon'lu Akut Miyokard İnfarktüsü 38,27±12,84, sağlıklı bireylerde ise 48,93±16,83 olarak bulundu. Hipertansiyon hastalarının ST Elevasyon'lu Akut Miyokard İnfarktüsü'lü hastalara göre ölüm anksiyete puanları arasında farklılık belirlendi (p=0,007). Grupların ölüm kaygısı puanlarının bazı sosyodemografik özelliklerle ilişkili olduğu belirlendi (p<0,05).

Sonuç: Araştırmada hipertansiyon hastalarında ölüm anksiyetesinin ST Elevasyon'lu Akut Miyokard İnfarktüsü hastalarına göre anlamlı derecede daha yüksek olduğu belirlendi.

Anahtar Kelimeler: Ölüm anksiyetesi, hipertansiyon, miyokard enfarktüsü, ST-elevasyonu

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INTRODUCTION

Death is the end of life due to the irreversible cessation of vital functions of a living thing.[1] Diagnosed with a chronic disease causes individuals to reconsider their lives by remembering death.[2,3] Hypertension (HT) and Myocardial Infarction (MI) are among the most common causes of death worldwide.[4] It is reported that more than 17.9 million people die yearly due to Cardiovascular Diseases (CVD) in the world.[5] In Türkiye, circulatory system diseases rank first among the causes of death with a rate of 35.4% in 2022. When deaths due to circulatory system diseases are examined according to sub-death causes, it was observed that 42.3% of the deaths were due to ischemic heart diseases.[6] Among CVD, MI is a significant health problem due to its high mortality rate, severe complications, and infarction recurrence.[7,8] It is stated that one in every six men and one in every seven women in Europe had MI, and 12.0% of patients died within six months following the infarction due to ST-Elevation Acute Myocardial Infarction (STEMI).[9] While worrying about death is normal, for some people, thinking about their death or the process of dying can cause intense anxiety and fear.[10] Death anxiety encompasses many emotions, such as fear, grief, and restlessness.[11,12] One of the factors that cause death anxiety is the presence of a chronic disease.[11,13,14] The most important reason for death anxiety and depression in STEMI patients is the high mortality rate.[15-19] When literature is examined, it is stated that there are a limited number of studies examining the death anxiety of heart patients, and these patients experience moderate to severe death anxiety[19,20]. In contrast, patients with MI generally experience moderate and severe death anxiety.[14,19,21] Hypertension is a chronic disease that progresses insidiously and can cause rhythm disorders, angina pectoris, myocardial infarction, and sudden deaths due to heart failure.[22,23] Hypertension patients are more likely to experience negative emotions such as anxiety and depression, and there are a limited number of studies showing that death anxiety is high in HT patients.[24]

Death anxiety affects the risky disease group and may negatively affect the life and quality of life of individuals of all ages. This study aimed to determine the death anxiety levels and related factors in patients with STEMI, patients with chronic diseases such as HT, and healthy volunteers.

MATERIALS AND METHODS

Ethical Approval: Ethics committee approval was obtained from the Ethics Committee of Non-Interventional Clinical Studies of Selcuk University (Date:03.02.2022 decision no: 2022/60). Permission was obtained from the Director's Office of the hospital. Written consent of the patients who participated in the study was obtained after reading an informed consent. The principles in the Declaration of Helsinki were complied with in the study.

***Study Design*:** It was conducted as a randomized-controlled research.

***Setting and Sample*:** The study population consisted of patients admitted to Tekirdağ City Hospital Cardiology outpatient clinic. The sample of the study included patients who were admitted to the cardiology outpatient clinic at least one year ago, who were diagnosed with hypertension and had STEMI at least once, who were using antihypertensive/cardiac medications, who were aged 18 or over, who volunteered to participate in the study, and who met the inclusion criteria of the study. It was determined that at least 55 participants in each group should have at least a 5% significant difference in the 95% confidence interval for 80% power, including the control group, hypertension patients, and STEMI patients. The research was completed with 195 participants who met the inclusion criteria, 65 people in each group.

In this study, the names of the patients who were admitted to Tekirdağ City Hospital Cardiology Outpatient Clinic between 01.02.2022 and 01.03.2022 were written on paper by a person who was not included in the study, they were placed in a black bag, and the groups were determined by simple randomisation method. Individuals aged over 18 who had no communication problems, were literate and were not diagnosed with HT or STEMI constituted healthy volunteers.

Data Collection: The data were collected with the data collection form prepared by the researchers in the scope of literature review and the "Abdel-Khalek Death Anxiety Scale (ASDA)".[3,19] The data were collected by face-to-face interview technique (in a private room, wearing the three-layer mask, considering hand hygiene and social distance rules). Before implementing the questionnaire, written and verbal consent was obtained after the patients were informed about the purpose of the study and the questionnaire form. Patients who could fill out the scales were given questionnaires and asked to complete them. The implementation of the data collection forms took approximately 20-25 minutes.

Patient Information Form: This form consists of two parts. The first part includes socio-demographic data and information about hypertension and STEMI disease; the second has "ASDA".

Abdel-Khalek Death Anxiety Scale (ASDA): It was developed by Abdel-Khalek[25,] considering the cultural differences of Muslim societies. It consists of 20 items.[26] In the validity and reliability study, Cronbach's alpha coefficients were between 0.88 and 0.93. The scale was adapted to Turkish by Ay-

dogan et al.[27]. Cronbach's alpha value was calculated as 0.86. In this study, the Cronbach Alpha reliability coefficient was 0.91.

Statistical Analysis: IBM SPSS 24.0 and SigmaStat 3.5 statistical software were used to evaluate the data. A normality test evaluated the distribution of numerical variables. The t-test and Mann-Whitney U test were used to compare the two groups. One-way ANOVA and Kruskal Wallis tests were used to compare three or more groups. Pearson correlation analysis was used to compare the scales used with each other. $p<0.05$ was accepted as significant in the study.

RESULTS

The mean age of HT patients was 55.63±11.81 years. Of them, 63.1% were male, 84.6% were married, and 52.3% were primary school graduates. The mean age of the STEMI group was 61.00±11.10 years. Of them, 80.0% were male, 89.2% were married, and 50.8% were primary school graduates. The mean age of healthy individuals was 37.64±17.43 years. Of them, 55.4% were female, 46.2% were married, and 72.3% were university graduates (Table 1).

It was determined that 58.5% of the patients in the HT group had a disease duration of 1-5 years, 73.8% had a family history of HT, 86.2% developed HT-related complications, and 70.8% did not have HT-related death anxiety. Of the STEMI patients, 61.5% had a heart disease duration of 1-5 years, 63.1% had a family history of heart disease, 86.2% had a STEMI history, 60.0% were afraid of having recurrent STEMI, 33.8% had STEMI-related death anxiety (Table 2).

Table 1. Distribution of HT, STEMI and healthy individuals by sociodemographic characteristics.

Sociodemographic Characteristics		HT (n=65) X̄±SD	STEMI (n=65) X̄±SD	Control (n=65) X̄±SD
Age		55.63±11.81	61.00±11.10	37.64±17.43
(Min-Max)		34-82	37-87	30-82
Sociodemographic Characteristics		**n (%)**	**n (%)**	**n (%)**
Gender	Female	24 (36.9)	13 (20.0)	36 (55.4)
	Male	41 (63.1)	52 (80.0)	29 (44.6)
Marital status	Married	55 (84.6)	58 (89.2)	30 (46.2)
	Single	10 (15.4)	7 (10.8)	35 (53.8)
Place of residence	Province	48 (73.8)	38 (58.5)	33 (50.8)
	District	14 (21.5)	19 (29.2)	30 (46.2)
	Village/town	3 (4.7)	8 (12.3)	2 (3.0)
Educational status	Primary education	34 (52.3)	33 (50.8)	4 (6.2)
	Secondary education	7 (10.8)	12 (18.5)	8 (12.3)
	High school	12 (18.5)	15 (23.1)	6 (9.2)
	University	12 (18.4)	5 (7.6)	47 (72.3)
Income status	Income less than expenses	9 (13.8)	9 (13.8)	20 (30.8)
	Income equal to expenses	50 (76.9)	53 (81.5)	37 (56.9)
	Income more than expenses	6 (9.3)	3 (4.7)	8 (12.3)
Smoking abuse	Yes	22 (33.8)	16 (24.6)	15 (23.1)
	No	33 (50.8)	39 (60.0)	49 (75.4)
	Quit	10 (15.4)	10 (15.4)	1 (1.5)
Alcohol abuse	Yes	46 (70.8)	50 (76.9)	49 (75.4)
	No	1 (1.5)	3 (4.6)	2 (3.1)
	Quit	18 (27.7)	12 (18.5)	14 (21.5)

X̄: Mean; SD: Standard Deviation; Min: Minimum; Max: Maximum

Table 2. Distribution of HT and STEMI patients by disease-related characteristics.

Distribution of HT Patients by Disease Characteristics (n=65)		n (%)
HT Duration of illness	1-5 years	38 (58.5)
	6-10 years	11 (16.9)
	11-15 years	8 (12.3)
	16 years and above	8 (12.3)
Presence of HT in the family history	Yes	48 (73.8)
	No	17 (26.2)
HT-related complication development status	Yes	9 (13.8)
	No	56 (86.2)
Status of getting information about HT	Yes	26 (40.0)
	No	39 (60.0)

Table 2. Continue.

The need for information about their illness	Yes	24 (36.9)
	No	41 (63.1)
HT-related death anxiety	Yes	19 (29.2)
	No	46 (70.8)
COVID status	Yes	16 (24.6)
	No	49 (75.4)
Treatment for COVID	Yes	13 (81.3)
	No	3 (18.7)
Distribution of Patients with STEMI by Disease Characteristics (n=65)		n (%)
Heart disease duration	1-5 years	40 (61.5)
	6-10 years	12 (18.5)
	11-15 years	6 (9.2)
	16 years and above	7 (10.8)
Presence of heart disease in the family history	Yes	41 (63.1)
	No	24 (36.9)
The need for information about their illness	Yes	14 (21.5)
	No	51 (78.5)
Number of previous STEMI	1 time	56 (86.2)
	2 times	7 (10.8)
	3 times	2 (3.1)
STEMI-related death anxiety	Yes	22 (33.8)
	No	43 (66.2)
Status of getting information about coronary angiography	Yes	38 (58.5)
	No	27 (41.5)
Coronary angiography status	Yes	41 (63.1)
	No	24 (36.9)
Pre-coronary angiography death anxiety status	Yes	21 (32.3)
	No	44 (67.7)
Post-coronary angiography death anxiety status	Yes	13 (20.0)
	No	52 (80.0)
COVID status	Yes	15 (23.1)
	No	50 (76.9)
Treatment for COVID	Yes	10 (62.5)
	No	5 (37.5)

The mean death anxiety scores of the groups were 46.38±16.72 in the HT group, 38.27±12.84 in the STEMI group, and 48.93±16.83 in the control group. There was a significant difference between the mean scores of intergroup death anxiety (F= 8.302, p= 0.000). It was found that the individuals in the HT group experienced death anxiety significantly more than the STEMI group and the control group (p=0.009, p=0.000) (Table 3).

Table 3. Comparison of average ASDA of HT, STEMI, and healthy individuals.

	HT (n=65) Min-Max $\bar{X} \pm SD$	**STEMI (n=65)** Min-Max $\bar{X} \pm SD$	**Control (n=65)** Min-Max $\bar{X} \pm SD$
	20-92	20-75	20-92
ASDA	46.38±16.72[a]	38.27±12.84[b]	48.93±16.83[c]
Tukey HSD Test	**p= 0.009****, a>b	F= 8.186, **p=0.000****, c>b	
The difference between the groups		F=8.302, **p=0.000****	

$\bar{X}$: Mean; SD: Standard Deviation; "One-way ANOVA Test" was used in comparisons of 3 or more normally distributed groups; Tukey HSD Test was used to determine the group that caused the difference; **p<0.01, a,b,c: shows the difference between groups.

When Table 4 is examined, a significant relationship was found between the death anxiety scale averages with gender, the status of experiencing death anxiety due to disease, income status, and alcohol abuse in the HT group patients. In the STEMI group, a significant relationship was found between the death anxiety scale averages and age, the status of experiencing death anxiety, information about heart disease and recurrent STEMI. It was found that there was a significant relationship between the death anxiety scale averages of the individuals in the control group and their age, gender and income status (Table 4).

Table 4. Correlation of HT, STEMI and healthy individuals ASDA averages.

Some characteristics of individuals		HT (n=65) ASDA	STEMI (n=65) ASDA	Control (n=65) ASDA
Age	r	-0.132	-0.316	-0.496
	p	0.293	**0.010****	**0.000****
Gender	r	-0.388	-0.240	-0.399
	p	**0.001****	0.055	**0.001****
Experiencing death anxiety due to disease	r	**-0.605**	-0.444	-
	p	**0.000****	**0.000****	-
Income status	r	-0.325	0.013	-0.321
	p	**0.008****	0.916	**0.009****
Alcohol abuse	r	0.250	0.143	0.021
	p	**0.045***	0.256	0.871
Information about heart disease	r	-	-0.420**	-
	p	-	**0.000**	-
Recurrent STEMI	r		-0.491	-
	p	-	**0.000 ****	-

r = Pearson Correlation Coefficient; *p < 0.05; **p < 0.01.

DISCUSSION AND CONCLUSION

In this study, HT patients had higher levels of death anxiety than patients with STEMI. In general, death anxiety was found to be associated with age, gender, disease status, income status, and STEMI history. Since it is important to address the individual in all aspects (physiological, psychological, and sociological) in holistic care, it is thought that it is important to provide a good counselling service and psychotherapy support by healthcare professionals at certain intervals to reduce death anxiety in both healthy individuals and patients with HT and STEMI.

Death is an inevitable and irreversible event experienced by the individual. Death, an important and real part of human life, creates much anxiety in some individuals.[10] In another study, there is strong evidence that increased anxiety negatively affects the prognosis of MI.[3] It is believed that cardiovascular diseases are high on the list of diseases, cause death worldwide, and cause numerous complications that remind people of death, generate emotional issues such as anxiety, and enhance people's fear of death.[16,21] Therefore, in this study, the death anxiety of patients with STEMI, HT, and healthy individuals was discussed in line with the literature.

In our study, it was found that the mean death anxiety scale score of the HT group was at a moderate level (46.38±16.72). ASDA mean score was significantly higher than the STEMI group's (Table 3). It is stated in the literature that hypertension, anxiety and depression occur together to a great extent. On the other hand, cognitive dysfunction leads to inadequacies in the control of hypertension.[24] Since there are limited studies in the literature examining the death anxiety of HT patients, these results and our study suggest that evaluating the death anxiety status of HT patients, taking the necessary precautions, and making interventions are important in preventing death anxiety and the occurrence of disease-related complications.

In our study, the mean ASDA score of the patients in the STEMI group was found to be at the lowest level (38.27±12.84) than the other groups (Table 3). In the study by Yıldırım and Kocatepe[19] examining the death anxiety of 300 patients with MI, it was stated that the death anxiety score of the patients was 12.50 ±2.91. They experienced severe death anxiety, and these anxiety levels were at panic levels. Our findings were consistent with the limited number of literature findings.[12,14,15,20] It is emphasised in the literature that severe symptoms and recurrent MIs experienced by patients with heart disease may cause death anxiety.[16,20] At the same time, it is stated that psychosocial problems such as depression and anxiety disorder may occur when death anxiety experienced by patients is not prevented.[14,26] Based on the results of this study, although different death anxiety scales are used in the studies, it is thought

that STEMI patients experience death anxiety at different levels (moderate, severe, and panic). Therefore, it will be important to determine the death anxiety of the patients in the early period and make the necessary interventions to reduce the complications and mortality rates.

It was determined that the ASDA levels of the healthy control group were significantly higher than the STEMI group and the HT group (Table 3). These results suggest that the death anxiety levels of patients with different chronic diseases are lower than those of healthy individuals because they may have thought about death more. In this case, they may have reduced their sensitivity to death and denied it. In other words, it may be because healthy individuals fear facing death suddenly and unexpectedly. Literature states that thinking about death and accepting it may have improved individuals' ability to cope with death anxiety.[9,21]

The study found that the death anxiety of the HT group patients was correlated with gender, the status of experiencing death anxiety due to disease, income status, and alcohol abuse. In the STEMI group, death anxiety was associated with age, experiencing death anxiety, information about heart disease, and recurrent STEMI. It was found that there was a significant relationship between the death anxiety level of the individuals in the control group and their age, gender, and income status (Table 4). When the literature is examined, it is stated that there are similar findings: MI frequency,[26] age and gender are associated with anxiety and death anxiety.[14,26] In their study examining the death anxiety of MI patients, Soleimani et al.[14] found that the predictors of death anxiety were age, economic status, religious belief, and self-esteem.

In conclusion, it is thought that it is important to provide individual training on disease symptoms and treatments, consider the variables affecting death anxiety, and develop problem-oriented positive coping strategies to reduce the death anxiety of HT and STEMI patients. This study does not reflect the generality of HT and STEMI patients. It is limited to individuals with HT and STEMI who comply with the research limitations and participated in the study in the hospital where it was conducted. The weaknesses of our study were that the rate of male patients in the STEMI and HT groups was higher than that of female patients. Although the patients were randomly selected, the fact that these diseases were more common in males made this difference. Similarly, the healthy control group individuals were younger than the patient group because the incidence of disease increases as they get older. The strengths of our study are that there are two important groups of cardiovascular diseases, including HT and STEMI diseases and a control group.

Ethics Committee Approval: Before data collection, Ethics committee approval was obtained from the Ethics Committee of Non-Interventional Clinical Studies of Selcuk University (Date:03.02.2022 decision no: 2022/60). Written permission was obtained from the Director's Office of the Hospital. Written consent of the patients who participated in the study was obtained after reading an informed consent. The principles in the Declaration of Helsinki were complied with in the study.

Conflict of Interest: No conflict of interest was declared by the authors.

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